

Translation

PATENT COOPERATION TREATY  
PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P04CG-012WO</b>	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. <b>PCT/JP2004/007955</b>	International filing date (day/month/year) <b>08.06.2004</b>	Priority date (day/month/year) <b>11.06.2003</b>
International Patent Classification (IPC) or national classification and IPC		
<p>Applicant <b>CENTRAL GLASS COMPANY, LIMITED</b></p>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <b>6</b> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																								
<p>4. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/007955

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

international search (Rule 12.3 and 23.1(b))  
 publication of the international application (Rule 12.4)  
 international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

the international application as originally filed/furnished  
 the description:  
 pages \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:  
 nos. \_\_\_\_\_ as originally filed/furnished  
 nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19  
 nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:  
 sheets \_\_\_\_\_ as originally filed/furnished  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to sequence listing (specify): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

## 1. Statement

Novelty (N)	Claims	1-12	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Document 1: JP 2002-30048 A1 (Central Glass Co., Ltd.),  
29 January 2002, claims and example 2

Document 2: JP 10-182578 A (Director General of the  
Agency of Industrial Science and  
Technology), 07 July 1998, paragraphs [0007]  
to [0011], [0014] and [0055]

(1) The inventions set forth in claims 1 and 3 do not involve an inventive step in the light of documents 1 and 2 cited in the international search report.

Document 1 discloses the feature of converting an optically active imine into an optically active secondary amine by means of an asymmetric reduction reaction using a palladium catalyst in a hydrogen atmosphere, and thereafter hydrolysing said optically active amine in order to produce an optically active  $\alpha$ -methyl-bis-3,5-(trifluoromethyl)benzylamine.

In addition, document 2 discloses imine compounds wherein the structures of the substituent group portions that have bonded to the nitrogen atoms of the imine are similar to the structures of the corresponding portions in the optically active imines that are disclosed in document 1, and discloses optically active 1-alkyl

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Box No. V      Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

substituted-2,2,2-trifluoroethylamines wherein the structures of the locations where the asymmetric carbon atoms have bonded with the amino groups or the alkyl groups are similar to the structures of the corresponding portions in the optically active  $\alpha$ -methyl-bis-3,5-(trifluoromethyl)benzylamines that are disclosed in document 1.

In the written response, the applicant asserts that the 3,5-bis-CF<sub>3</sub>-phenyl group of the optically active imines that are disclosed in document 1 and the perfluoroalkyl group of the imine compounds that are disclosed in document 2 have different electron withdrawing strengths, and that therefore, the optically active imines that are disclosed in document 1 and the imine compounds that are disclosed in document 2 have different chemical environments with regards to their electrons.

However, despite their different electron withdrawing strengths, both the 3,5-bis-CF<sub>3</sub>-phenyl group and the perfluoroalkyl group are electron attracting groups; therefore, there are not considered to be any structural differences between the optically active imines that are disclosed in document 1 and the imine compounds that are disclosed in document 2 which would be sufficient to significantly change the characteristics of the reaction. As a result, it would have been easy for a person skilled in the art to conceive that the imine compounds that are disclosed in document 2 will express reaction characteristics similar to those of the optically active imines that are disclosed in document 1, and that it would be possible to produce an optically active 1-alkyl substituted-2,2,2-trifluoroethylamine by

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subjecting an imine compound to asymmetric reduction and then to hydrolysis.

(2) The invention set forth in claim 2 does not involve an inventive step in the light of documents 1 and 2 cited in the international search report.

Refer to the explanation in section (1), above.

In addition, document 1 indicates that asymmetric reduction is carried out at a temperature of between -50 and 150°C; therefore, it would have been easy for a person skilled in the art to select an appropriate temperature within said range.

(3) The invention set forth in claim 4 does not involve an inventive step in the light of documents 1 and 2 cited in the international search report.

Refer to the explanations in sections (1) and (2), above.

Furthermore, document 1 discloses the feature of producing an optically active imine by dehydrating and condensing ketones and optically active amines under acidic conditions; therefore, a person skilled in the art could have produced the imine compounds that are disclosed in document 2 by means of the method in question, as appropriate.

(4) The invention set forth in claims 5 to 8 does not involve an inventive step in the light of documents 1 and 2 cited in the international search report.

Refer to the explanations in sections (1), (2) and (3), above.

In addition, recrystallization is a commonly used

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refining operation, as is apparent from the fact that document 1 discloses the feature of carrying out a refining operation such as recrystallization as an after-treatment for an asymmetric reduction reaction; therefore, it would not have required significant creativity to select the operation in question.

(5) The inventions set forth in claims 9 to 12 do not involve an inventive step in the light of documents 1 and 2 cited in the international search report.

It would have been easy for a person skilled in the art to conceive of synthesizing optically active secondary amines by subjecting the imine compounds that are disclosed in document 2 to an asymmetric reduction reaction, as indicated in sections (1) to (4) above.

Furthermore, the optically active secondary amines in the inventions that are set forth in the present application are merely intermediates, and do not exhibit any special activity in and of themselves; therefore, said amines do not affect the determination of whether or not the effects of the inventions that are set forth in the present application involve an inventive step.